



41426-FA-PCT-US  
SEQUENCE LISTING

<110> Israeli, Ron S.

Heston, Warren D.W.

Fair, William R.

<120> PROSTATE-SPECIFIC MEMBRANE ANTIGEN AND USES THEREOF

<130> 1769/41426-FA-PCT-US

<140> 10/751,346

<141> 1998-01-02

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<170> PatentIn version 3.1

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&lt;213&gt; HOMO SAPIENS

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&lt;210&gt; 6

&lt;211&gt; 22

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Lys

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Lys

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| cacatgctct ganagnngtt ggaaagggtgc gatccannnt tcctgtaagg tnngacnnaa | 240 |  |
| caaagcagga gannnngcca gantaatggt gaaactagat gtgaacaatt ccatgaaaga  | 300 |  |
| caggaagatt ctgaacatct tcggtgctat ccagggattt gaagaacctg atcgttatgt  | 360 |  |
| tgtgattgga gcccagagag actcctgggg cccaggagtg gctaaagctg gcactggaac  | 420 |  |
| tgctatattg ttggaacttg cccgtgtgat ctcagacata gtgaaaaacg agggctacaa  | 480 |  |
| accgaggcga agcatcatct ttgctagctg gagtgcagga gactacggag ctgtgggtgc  | 540 |  |
| tactgaatgg ctggaggggt actctgccat gctgcatgcc aaagctttca cttacatcan  | 600 |  |
| ngcttggatg ctccagtcct gggagcaagc catgtcaaga tttctgcaag ccccttgctg  | 660 |  |
| tatatgctgc tggggagttat tatgaagggg gtgaagaatc cagcagcagt ctcagagagc | 720 |  |
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| gaaagaaaaca agaatactta acatcttgg cgtttataaa ggctatgagg aaccagaccg  | 180 |      |
| ctacattgtta gtaggagccc agagagacgc ttggggccct ggtngttgcg aagtccagtg | 240 |      |
| tggAACAGG tcttnctgtt gaaacttgcc caagtattct cagatatgtat ttcaaaagat  | 300 |      |
| ggatttagac ccagcaggag tattatctt gccagctgga ctgcaggaga ctatggagct   | 360 |      |
| gttggtccga ctgagtggct ggaggggtac ctttcatctt tgcatctaaa gnnngcttc   | 420 |      |
| acttacatta atnctggata aagtcgtcct gggtaactagc aacttcaagg tttctgccag | 480 |      |
| cccccttata tatacactta tggggaaagat aatgcaggan ncgtaaagca tccgannnnn | 540 |      |
| nnnttgatgg aaaatatcta tatcgaaaca gtaattggat tagaaaatt gaggaacttt   | 600 |      |
| ccttggacaa tgctgcattc cctttcttg catattcagg aatcccagca gtttcttct    | 660 |      |

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| catctttgga gttattaaag gctttgtaga accagatcac tatgtttagt ttggggccca   | 180 |
| gagagatgca tggggccctg gagctgcaaa atcncggtgt aggcacagct ctcctattga   | 240 |
| aacttgcaca gatgttctca gatatggtct taaaagatgg gtttcagccc agcagaagca   | 300 |
| ttatctttgc cagttggagt gctggagact ttggatcggt tggtgccact gaatggctag   | 360 |
| agggataacct ttcgtcnccct gcatttaaag gctttcactt atattaatct ggataaagcg | 420 |
| gttcttggta ccagcaactt caaggttctt gccagccac tgggtatac gcttatttag     | 480 |
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36

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&lt;213&gt; HOMO SAPIENS

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&lt;211&gt; 35

&lt;212&gt; DNA

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35

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&lt;211&gt; 21

&lt;212&gt; DNA

&lt;213&gt; HOMO SAPIENS

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21

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<400> 85

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14

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<211> 36

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36

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<400> 87

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14

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14

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15

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14

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14

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39

&lt;210&gt; 103

&lt;211&gt; 14

&lt;212&gt; DNA

&lt;213&gt; HOMO SAPIENS

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14

&lt;210&gt; 104

&lt;211&gt; 14

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&lt;213&gt; HOMO SAPIENS

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14

&lt;210&gt; 105

&lt;211&gt; 37

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&lt;213&gt; HOMO SAPIENS

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&lt;223&gt; n=any nucleotide

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37

&lt;210&gt; 106

&lt;211&gt; 17

&lt;212&gt; DNA

&lt;213&gt; HOMO SAPIENS

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17

&lt;210&gt; 107

&lt;211&gt; 14

&lt;212&gt; DNA

&lt;213&gt; HOMO SAPIENS

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&lt;211&gt; 41

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41

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&lt;211&gt; 3015

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ttacagatgg gctgtgagct gggtgcttgt aagagatgct tgggtgctaa gtgagccatt 180  
tgcagttgac cctattctt gaaacattcat tcccctctac ccctgtttct gttcctgcca 240  
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tctttaaacc tcagtttct tatctgtaaa aggtaaataa taatacaggg tgcaacagaa 360  
aatcttagtg tggtttacat aatcacctgt tagagat tttt aaattatttc aggataagtc 420  
atgataatta aatgaaataa tgcacataaa gcacatagtg tgggtgcctc catatagaaa 480

## 41426-FA-PCT-US

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|--|------|
| atgctcagta tattggttat taactacttg ttgaaggttt atcttctcca ctaaactgta    | 540  |
| agttccacaa gccttacaat atgtgacaga tattcattca ttgtctgaat tcttcaaata    | 600  |
| catcctcttc accatagcgt cttaattaaattt gaattattaa ttgaataaat tctattgttc | 660  |
| aaaaatcaact tttatattta actgaaattt gcttacttat aatcacatct aaccttcaaa   | 720  |
| gaaaacacat taaccaactg tactggtaa tgtaactggg tgatcccacg tttacaaat      | 780  |
| gagaagatat attctggtaa gttgaatact tagcacccag ggttaatcag cttggacagg    | 840  |
| accaggtcca aagactgtta agagtcttct gactccaaac tcagtgcctc ctccagtgcc    | 900  |
| acaagcaaac tccataaaagg tattcgtgc tgaatagaga ctgttagatg gtacaaagta    | 960  |
| agacagacat tatattaagt cttagcttg tgacttcgaa tgacttacact aatctagcta    | 1020 |
| aatttcagtt ttaccatgtg taaatcagga agagtaatag aacaaacctt gaagggtccc    | 1080 |
| aatggtgatt aaatgaggtg atgtacataa catgcatcac tcataataag tgctcttaa     | 1140 |
| atattagtca ctattatttag ccatctctga ttagattga caataggaac attaggaaag    | 1200 |
| atatagtaca ttcaggattt tgtagaaag agatgaagaa ttcccttcct tcctgcccta     | 1260 |
| ggtcatctag gagttgtcat ggttcattgt tgacaaatta atttcccaa attttcact      | 1320 |
| ttgctcagaa agtctacatc gaagcaccca agactgtaca atctagtcctc tcttttcca    | 1380 |
| cttaactcat actgtgcctc cccttctca aagcaaactg tttgctattc cttgaataca     | 1440 |
| ctctgagttt tctgcctttg cctactcagc tggccatgg cccctaatttgc ttcttctcat   | 1500 |
| ctccactggg tcaaattccta cctgtacctt atggttctgt taaaagcagt gcttccataa   | 1560 |
| agtactccta gcaaattgcac ggcctctctc acggattata agaacacagt ttatttata    | 1620 |
| aagcatgttag ctattctctc cctcgaaataa cgattattat tattaagaat ttatagcagg  | 1680 |
| gatataattt tggatgtga ttcttctggt taatccaacc aagattgatt ttatattctat    | 1740 |
| tacgtaaagac agtagccaga catagccggg atatgaaat aaagtctctg cttcaacaa     | 1800 |
| gttccagttat tctttcttt cctccctcc cctccctcc cttccctcc cttccctcc        | 1860 |
| ctttcccttc cttcccttc tttcttgagg gagtctact ctgtcaccag gctccagtgc      | 1920 |
| agtggcgcta tcttggctga ctgcaacctc cgccctccccg gttcaagcga ttctcctgcc   | 1980 |
| tcagccctct gagtagctgg gactacagga gcccggcacc acgcccagct aattttgtat    | 2040 |
| tttttagtag agatggggtt tcaccatgtt ggccaggatg gtctcgattt ctcgacttcg    | 2100 |
| tgatccgcct gtctgggcct cccaaagtgc tggattaca ggcgtgagcc accacgccccg    | 2160 |
| gctttaaaaa atggttttgt aatgttaagtg gaggataata ccctacatgt ttatataaa    | 2220 |
| caataatatt cttagaaaa aaggcgccgg tggatgtta cactgtatgac aagcattccc     | 2280 |
| gactatggaa aaaaagcgca gctttctg ctctgctttt attcagtaga gtattgtaga      | 2340 |
| gattgtatag aatttcagag ttgaataaaa gttccctcata attataggag tggagagagg   | 2400 |

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| gtgcctctc tctctcgctc ggattggttc agtgcactct agaaacactg ctgtggtgga   | 2580 |
| gaaactggac cccaggtctg gagcgaattc cagcctgcag ggctgataag cgaggcatta  | 2640 |
| gtgagattga gagagactt accccgccgt ggtggttgga gggcgcgca tagagcagca    | 2700 |
| gcacaggcgc gggtcccccaggccggc tgctcgccgca gagatgtgga atctccttca     | 2760 |
| cgaaaccgac tcggctgtgg ccaccgcgcg ccgccccgcg tggctgtgcg ctggggcgct  | 2820 |
| ggtgctggcg ggtggcttct ttctcctcgg cttcctcttc ggtagggggg cgccctcgccg | 2880 |
| agcaaaccctc ggagtcttcc ccgtggtgcc gcgggtctgg gactcgcggg tcagctgccc | 2940 |
| agtgggatcc ttttgcttgtt cttccccagg ggcggcgatt agggtcgggg taatgtgggg | 3000 |
| tgagcaccccc tcgag  | 3015 |

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<212> DNA

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| ttattaaatt ccagtttga ctttgccact tcttagtggc cttgaacaag ttaccgagtc    | 120 |  |
| ctctcagcgt tagttacccat atttaatga tgaggataat attaatctgc ccaaattatt   | 180 |  |
| ggtatagtaa atatatagca tgtaatctcc tagcagagta ctgggatttc gccactttat   | 240 |  |
| ttcttcctta ccaagatact cctattggac ttaatacaca ggactagtct aaggtatcac   | 300 |  |
| caggtagtcc actcctgctc ggaatctgac ccgggatttag agtagggcat ggaccagatg  | 360 |  |
| ggtttaaaca aattcaatat cttccactag cttcaccttgg gggttgtaaa agttttgaa   | 420 |  |
| ccacacactg tgctcataac aatcttcatac tcttaaaagg attttattct tcctggatc   | 480 |  |
| ctcactctca tcccttgat tccgtgctca gtggctgaca cagaagagtt cttnnnnnnnnn  | 540 |  |
| nnnnnnnnnnnnn catcctgttc attttcaga tctcagttca agcatctcg cctcagtgtg  | 600 |  |
| gtgttnnctg atccctcaact ctaatccaaag tctttctgtt ttatgcacag gttggaatct | 660 |  |
| tatccctgtt tgcgnnccaa tcnaatngta ttatatatgc atgtatataat gtatgtcat   | 720 |  |
| ttgtatgcta ngcgattaag aactagaata attaataatt ggaagtctag aagtgg       | 776 |  |

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&lt;220&gt;

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&lt;223&gt; n=any nucleotide

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&lt;222&gt; (950)..(961)

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&lt;221&gt; misc\_feature

&lt;222&gt; (1045)..(1045)

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&lt;220&gt;

&lt;221&gt; misc\_feature

&lt;222&gt; (1102)..(1102)

&lt;223&gt; n=any nucleotide

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| tattgttcta tgtattattt gtaaaacaca aattatcaat attacctctg acattaggtg  |  | 120 |
| agatattctg aattttaatt tctcttgctt actttcactg aaaaagagtc atgcaaacag  |  | 180 |
| attttaagt tgcaaaccata ttgcaaaata ttttttatac caacttcaat gataaggatt  |  | 240 |
| gctgttaatt ctaagatatg cattaattgt ttcaactaat gggtgtcaaa cgagatgttc  |  | 300 |
| tgaaaaatgaa ggcaaaaagg gatccacctt ctacttcataa aagtttcta tcttcctctg |  | 360 |
| ctgactcaaa taagcattta atacattta taacgaatta attatgaata atatttcaaa   |  | 420 |
| taaataaatt atttccaagt gttgaaggaa attcagactt ctaatttgct ctgattctga  |  | 480 |
| aactaaaaca aatgctctgt gagagttgc gttccagtg aagtagcgtg agaaatccaa    |  | 540 |
| gtcagacagc tacatgaaac tacatttacc agctctctgc cagacaccag tgcacgatag  |  | 600 |

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cgcagaacat gtagctagat ctcagtcata gctnnnnnnnn nnnnnnnnnn agaccttgca 660  
gttggcttt aacctgaagg agataaggca agattccagg gtttatttag agaaattaca 720  
ggatctggga ataaaagtagt tacaaaatta gtcggcaacc agctttcatg gagcttcaa 780  
ttattaatta ttcttagttct taatcgcatg catacatgc acatacatat atacatgcat 840  
attaaaatac atgattggac gcaaacggaa ataagattcc acctgtgcat aaaacagaaa 900  
gacttggtta gagtgaggga tcagggaaaca ccacactgag gacgagatgn nnnnnnnnnn 960  
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tgttatgagc acagtgtgtg gnttcaaaaa tcttttaaca accccaaggt gaagctagtt 1140  
ggaagatatt tgaatttgtt taaacccatc tggtccttagc cctattctt gaatccgaag 1200  
aggtaagaa ttccgagcag agtggactac ctgtgataacc ttagactagt cctgtgtatt 1260  
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<210> 112

<211> 788

<212> DNA

<213> HOMO SAPIENS

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aaagaaacat tccccccat ttattatTTT ttcaaataacc ttctatgaaa taatgttcta 180
tccctctcta aatattaata gaaatcaata ttattggAAC tgtgaatacc tttaatatct 240
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## 41426-FA-PCT-US

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| cattatccgg tgtcaactac tttcctatga tggtagtta ctgggttag aagtcggaa    | 300 |
| ataatgctgt aaannnnna gtagtctac acaccaatat caaatatgtat atacttgtaa  | 360 |
| acctccaagc ataaaaagag atactttata aaagaggttc ttttttctt ttttttttt   | 420 |
| ccagatggag tttcactcct gtcaggcagg cngagtgcag tggtgccatc tcggctcact | 480 |
| gcaacctcca cctccatgt tcaaggatt ctccttcctc agtctcctga gtagctggaa   | 540 |
| ttacaggtgt gcaccaccac acccagctaa tttttgtatt tttaatagag acagggtttc | 600 |
| gatcgatgtt ggccaggcta gtctcgaact cctgacctct aggtgatcca cccgctcagc | 660 |
| tcccaaagtt gtagaattac acgtgtgagg cactgcgcct tgccaggaga tacattttg  | 720 |
| ataggtaa tttataaaga cactgcacag atttgagttt ctgggaaatg cacggattcc   | 780 |
| agtatgca  | 788 |

&lt;210&gt; 113

&lt;211&gt; 368

&lt;212&gt; DNA

&lt;213&gt; HOMO SAPIENS

|  |     |
|--|-----|
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| atctttatg tcagtagagg gtgaatgaat ctttcaggat tttgatgata gtatcagata               | 120 |
| cccagcacta tgctagaagt tgtgaagaat tcacgagatg aataaatcac agattctgtc              | 180 |
| ctcaaaatgg ttagatctat tcagggaaaca aagctaaaaa aaccccacca ataactaaaa             | 240 |
| atcaacccaa taaaaacaa caatcataaa ataagtaagt acctatagaa agaaaagctc               | 300 |
| agaggaggtt aaaaagatct cttaaaagg aatactatat actgtaaaaac tgtgactgat              | 360 |
| agaaggaa   | 368 |

&lt;210&gt; 114

&lt;211&gt; 877

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<222> (790)..(791)

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ccaatgtaaa aagttatagt gggtttaca tgtgtagaat cattttctta aaactttatg 120  
aataccatta tttcttgta ttctgtgaca tgccacctta cagagaggac acatttacta 180  
ggttatatcc cggggtaaa ttcgagcatt ggaattggc cagtgtagat gtttagagtg 240  
aacagaacaa ttttctgtg cttacaggtt atggctgtgg cgtacaagaa gcatgcactg 300

## 41426-FA-PCT-US

|   |     |
|---|-----|
| ggttattat taacttcag tatcttggtt taaaatattt tctacaaaaa tgtttactaa   | 360 |
| attaaattgt agtatgaatt gttataaata atgagggaaa cattacaca tagcaaattt  | 420 |
| aaaaattact gtcattgtat ttgttaatat attttctct ttagtggaa attaaattaa   | 480 |
| aaaattcctt tcgactgtca gacaatagga ttgctgtggt ctacttgctt attatatttg | 540 |
| tagagtctag aatgcaatct cactacacta tagacatctc annctaacgt aggacaattc | 600 |
| tgagaaaacta ttccagacct ccttatggc ttagccaagg ntatccttca gctggcattg | 660 |
| cagggtgact tctnctcnn aatccagctc tctntcacag atgtgatcca agagacactc  | 720 |
| acaattaatc aactagcatt ctaaatttca attccagatc tattacctt atatggtagc  | 780 |
| tgaagctttn ntcactgtca attctgatca gatatatgac aattttaaat tatttgcagt | 840 |
| gtgtaagaaa cgcttcaggt agttaaatt taaggct                           | 877 |

&lt;210&gt; 115

&lt;211&gt; 893

&lt;212&gt; DNA

&lt;213&gt; HOMO SAPIENS

|  |     |
|--|-----|
| <400> 115  |     |
| ctccttggc ccctgccagc tggcatttt taacctagtt tacacagtgt cttttttcc       | 60  |
| ttattttaaa ttgggtgttc cagattcggt aatataattt ttaatatttta cactaaatg    | 120 |
| agtaccagaa ctttatcttc aaccttttc tcattaggcc tacaacatag gacatctcgg     | 180 |
| atagaatttc ctttcttt tgctactata agctgctaaa atcctcagaa catcagattt      | 240 |
| agaaatgttc ttatttagtgg tagtgagcat ttgctatttc ctaccactag cttacaaata   | 300 |
| taataagcaa gtagacccca caggccaaat tcctattgt tctacagtgc aaagggatt      | 360 |
| ttttaaaatt taatttccac taaagagaaa aatataatttta caatcaaattt gacagtcgat | 420 |
| tttaattgct atgtgtaatt gtttccctc attatttata acaattcata ctacaatttta    | 480 |
| atttagtaaa cattttgtt gaccatattt aaaacaaaga tactgaaagt taatataaac     | 540 |
| ccagtgcatg ctctctgttag gccacagccca taacctgtaa gcacagaaaa atttggctcg  | 600 |
| ttactctaaa catctacact ggccaaatttcaatgctcgat atttaacccc gggatataac    | 660 |
| ctagtaaatg tgcctctct gtcaaggtgg gcatgtcaca gaatacagaa caatcaatgg     | 720 |
| tattcataaa gtttaagaa aatgattcta cacatgtaaa acccactata actttttaca     | 780 |
| ttgggggaga gaaaaaaaaa gataattttt accttacctt atttccctcg aaaactttcc    | 840 |
| catatctggc aattacaatt ttcccagagc aattgatttt catgtcccggt tcc          | 893 |

<210> 116  
<211> 1105  
<212> DNA  
<213> HOMO SAPIENS

<220>  
<221> misc\_feature  
<222> (272)..(278)  
<223> n=any nucleotide

<220>  
<221> misc\_feature  
<222> (545)..(550)  
<223> n=any nucleotide

<220>  
<221> misc\_feature  
<222> (935)..(950)  
<223> n=any nucleotide

<220>  
<221> misc\_feature  
<222> (1034)..(1036)  
<223> n=any nucleotide

<400> 116  
gatgctattt gggcaatttc ttattgacag ttttgaardt ttaggctttt atctccattt 60  
tttagtactt aaattttcca acatgggtgt tgcttgat tttatcaga taaaatagaa 120  
gagtggttct gttctggaaat ttagtatata catgagatc tagtgtatgt cagccatgaa 180  
aatgaacctt tcagatgttt tcagatgttt aacttcagg aacctaattt agtcattgtct 240  
ccagacattt ttgcatttgc cccactat tnnnnnnnct cgggcaatga ctcagtgtgg 300  
caaggatact actgcaggcc tgtttctgga aggcactgga ctcctctgtat gcaaactttt 360  
gccaggact ccttgatagc tcttaaatag atgctgcacc aacactctct ttctttctc 420

## 41426-FA-PCT-US

|             |             |            |            |             |             |      |
|-------------|-------------|------------|------------|-------------|-------------|------|
| tcttttctt   | tattcaatat  | tagactacaa | gcagtctaa  | ggtttctagc  | tctctctcat  | 480  |
| ttcacacatg  | cttccttagt  | aatctctact | catatatctt | actgctacgc  | tggggccaga  | 540  |
| taacnnnnnn  | cttccatTTT  | gttttatct  | ctattttct  | tcccttctg   | ctttcattat  | 600  |
| tgaaactttc  | tgcttcatt   | attgaaactt | tcccagattt | gttctgctta  | acctggcatt  | 660  |
| ggaactgttt  | cctctccct   | gtgctgctt  | ctcccatgc  | catgtcctt   | ttttttttt   | 720  |
| ttttttttt   | tgagacagtg  | tcactctgtt | gcccaggctg | gagtgcaatg  | gtgcaatctt  | 780  |
| ggccactgca  | accccgactc  | cgggttcaag | tgattctcta | cctgcctcag  | cctcctgagt  | 840  |
| agctgggatt  | acaggtgcca  | ccactatgcc | ggctgatttt | gtatTTtagt  | agagatgggt  | 900  |
| tcacatgcag  | atcagctgtt  | ccgactctga | ccagnnnnnn | nnnnnnnnnnn | atcaaagtca  | 960  |
| gccaaggatgc | taggcttaga  | gtaattgtgt | aattccaca  | caagtgcaac  | ctagtgtaat  | 1020 |
| gcctcaagaa  | tgtnnnntatg | aatgtctcga | acgtagtaa  | ctaataacaa  | gtagtttagtt | 1080 |
| tatagatgt   | tccttagtatg | tagca      |            |             |             | 1105 |

&lt;210&gt; 117

&lt;211&gt; 930

&lt;212&gt; DNA

&lt;213&gt; HOMO SAPIENS

|              |             |              |            |             |             |     |
|--------------|-------------|--------------|------------|-------------|-------------|-----|
| <400>        | 117         |              |            |             |             |     |
| cacaaaaaaaaa | gattatttagc | cacaaaaaaaaa | ccttgaagta | acgcattaaa  | atgttaatgg  | 60  |
| attcacttta   | ttgagcatct  | gctcataata   | cttaatgag  | tgcaaagtgc  | tttgaatata  | 120 |
| atacgtcatt   | taaaccttac  | cataattctg   | aggaattgct | acctccactt  | cacagatggg  | 180 |
| gcacaggagg   | cttagataac  | atgccaaag    | tcatgcttct | agtaaatgga  | tataattaag  | 240 |
| attcaaatta   | ttgataagaa  | tttgatctgc   | cttaccagta | tctagtagta  | aatctaaaag  | 300 |
| cgcttccag    | agcatgtgct  | gttgatagag   | cttgatgtct | aactctctga  | aattttccat  | 360 |
| tcttatttgt   | ctcactggta  | tatagttatt   | tttactact  | ttcatacaccc | tactaagaag  | 420 |
| acaggaggat   | caaagatagg  | attcattta    | gaatgcctaa | agttcacgt   | attttaattc  | 480 |
| agaataagat   | tcaggcagac  | caccagtata   | tgccatggtc | cctggttatc  | tttcagcagg  | 540 |
| tgaccgagaa   | agaaaacatg  | gtaatgttta   | tgaaatggtg | ggttcttgta  | gtttcacttc  | 600 |
| aacatatctg   | ccttactgt   | attaagatga   | tggattaact | tattcttgat  | atggcatgt   | 660 |
| aaaacaatat   | acttttacta  | aacagctaca   | gagagacaaa | tgtgtttcca  | gacaaaactta | 720 |
| agagactgag   | tgttcaaact  | gaataatctc   | gacctaatt  | gtaactata   | tttatgaaat  | 780 |
| ccagctgtaa   | ggcaaaacag  | actctggct    | acacgcatt  | tgtctgttaa  | tgatactcaa  | 840 |

## 41426-FA-PCT-US

|   |     |
|---|-----|
| ccttaaccgt cacttaataa tgctgaataa tgtcattaat ctgagatgtt agtatgatca | 900 |
| atggaaatca ctgctgagct ctogaagccc                                  | 930 |

<210> 118

<211> 2652

<212> DNA

<213> HOMO SAPIENS

|   |      |
|---|------|
| <400> 118   |      |
| ctcaaaaggg gcccggatttc ctttcctgg aggcatgtgt tgcctctctc tctcgctcgg     | 60   |
| attggttcag tgcactctag aaacactgct gtggggaga aactggaccc caggtctgga      | 120  |
| gcgaattcca gcctgcaggg ctgataagcg aggatttagt gagattgaga gagactttac     | 180  |
| cccgccgtgg tgggtggacg ggcgcgcagta gagcagcgc acaggcgcgg gtcccgaggag    | 240  |
| gcccggctctg ctgcgcgcga gatgtggaat ctccttcacg aaaccgactc ggctgtggcc    | 300  |
| accgcgcgcg cgcgcgtggct gtgcgcgtgg ggcgcgtgtc tggcggtgg cttctttctc     | 360  |
| ctcggcttcc tcttcgggtg gtttataaaa tcctccaatg aagctactaa cattactcca     | 420  |
| aagcataata taaaaggcatt tttggatgaa ttgaaagctg agaacatcaa gaagttctta    | 480  |
| tataatttta cacagataacc acattttagca ggaacagaac aaaactttca gtttgcggaa   | 540  |
| caaattcaat cccagtggaa agaatttggc ctggattctg tttagctgc acattatgtat     | 600  |
| gtcctgttgt cctacccaaa taagactcat cccaaactaca tctcaataat taatgaagat    | 660  |
| ggaaatgaga ttttcaacac atcattatggaa accacacccctc ctccaggata tgaaaatgtt | 720  |
| tcggatattt taccacccctt cagtgctttc tctcctcaag gaatgccaga gggcgatcta    | 780  |
| gtgtatgtta actatgcacg aactgaagac ttctttaaat tggaaacggga cgacatgaaa    | 840  |
| atcaatttgc ctggggaaaat tgtaattgcc agatatggga aagttttcag agggaaataag   | 900  |
| gttaaaaatg cccagctggc agggggccaaa ggagtcattc tctactccga ccctgctgac    | 960  |
| tactttgctc ctgggggtgaa gtcctatcca gatgggttggaa atcttcctgg aggtgggtgtc | 1020 |
| cagcgtggaa atatcctaattt ctgaatggtg caggagaccc tctcacacca gtttacccag   | 1080 |
| caaattgaata tgcttataagg cgtggaaattt cagaggctgt tggcttcca agtattcctg   | 1140 |
| ttcatccaat tggataactat gatgcacaga agctcctaga aaaaatgggt ggctcagcac    | 1200 |
| caccagatag cagctggaga ggaagtctca aagtgcctca caatgttggaa cctggcttta    | 1260 |
| ctggaaaactt ttctacacaa aaagtcaaga tgcacatcca ctctaccaat gaagtgcacaa   | 1320 |
| gaatttacaa tggataggt actctcagag gagcagtgga accagacaga tatgtcattc      | 1380 |
| tgggaggtca ccgggactca tgggtgtttt gttgttattga ccctcagagt ggagcagctg    | 1440 |

## 41426-FA-PCT-US

|  |      |
|--|------|
| ttgttcatga aattgtgagg agctttggaa cactaaaaaa ggaagggtgg agacctagaa  | 1500 |
| gaacaatttt gtttgcaga ctttgcag aagaatttgg tcttcttgg tctactgagt      | 1560 |
| gggcagagga gaattcaaga ctccttcaag agcgtggcgt ggcttatatt aatgctgact  | 1620 |
| catctataga aggaaaactac actctgagag ttgattgtac accgctgatg tacagcttgg | 1680 |
| tacacaacct aacaaaagag ctgaaaagcc ctgatgaagg ctttgaaggc aaatctttt   | 1740 |
| atgaaagttg gactaaaaaa agtccttccc cagagttcag tggcatgcc aggataagca   | 1800 |
| aattgggatc tggaaatgat tttgaggtgt tcttccaacg acttggatt gcttcaggca   | 1860 |
| gagcacggta tactaaaaat tggaaacaa acaaattcag cgctatcca ctgtatcaca    | 1920 |
| gtgtctatga aacatatgag ttggtgaaa agtttatga tccaatgttt aaatatcacc    | 1980 |
| tcactgtggc ccaggttcga ggagggatgg tggtagct agccaattcc atagtgcctc    | 2040 |
| cttttgattt tcgagattat gctgttagtt taagaaagta tgctgacaaa atctacagta  | 2100 |
| tttctatgaa acatccacag gaaatgaaga catacagtgt atcatttgat tcacttttt   | 2160 |
| ctgcagtaaa gaattttaca gaaattgctt ccaagttcag tgagagactc caggacttt   | 2220 |
| acaaaagcaa cccaatagta ttaagaatga tgaatgatca actcatgtt ctggaaagag   | 2280 |
| cattattga tccatttaggg ttaccagaca ggcctttta taggcatgtc atctatgctc   | 2340 |
| caagcagcca caacaagtat gcaggggagt cattccagg aatttatgat gctctgttt    | 2400 |
| atattgaaag caaagtggac ctttccaagg cctggggaga agtgaagaga cagatttgc   | 2460 |
| ttgcagcctt cacagtgcag gcagctgcag agacttgag tgaagtagcc taagaggatt   | 2520 |
| ctttagagaa tccgtattga atttgtgtgg tatgtcactc agaaagaatc gtaatggta   | 2580 |
| tattgataaa tttaaaatt ggtatattt aaataaagtt gaatattata tataaaaaaa    | 2640 |
| aaaaaaaaaa aa  | 2652 |

&lt;210&gt; 119

&lt;211&gt; 3014

&lt;212&gt; DNA

&lt;213&gt; HOMO SAPIENS

|  |     |
|--|-----|
| <400> 119  |     |
| gcgcttaaa aaaaaaaaaac tttcttggaa aatgtccagc tcttgcttaa atataaaaag  | 60  |
| aaaggaaagaa agagactctc ctctctccac tcctataatt atgaggaact tttattcaac | 120 |
| tctgaaattc tatacaatct ctacaatact ctactgaata aaagcagagc agaaaaagct  | 180 |
| gcgcttttt tccatagtcg ggaatgcttg tcattcgtgt aaatcaccac cgcccccctt   | 240 |
| ttcctaaaga atattattgt tattaataaa catgttaggtt attatcctcc acttacatta | 300 |

|            |            |            |            |            |            |      |
|------------|------------|------------|------------|------------|------------|------|
| caaaaccatt | ttttaaagcc | ggcggtgg   | gctcacgcct | gtaatcccag | cacttggg   | 360  |
| ggcccgac   | ggcgatcac  | gaagtcgaga | aatcgagacc | atcctggcc  | acatggtaa  | 420  |
| acccatctc  | tactaaaaat | acaaaaatta | gctggcg    | gtggcg     | ctgttagtcc | 480  |
| cagctactca | ggaggctgag | gcaggagaat | cgcttgaacc | ggggaggcgg | aggttgcagt | 540  |
| cagccaagat | agcgccactg | cactggagcc | tggtgacaga | gtgagactcc | ctcaagaaag | 600  |
| aaaggaaggg | aaggaaagg  | gaaggaaggg | gaggggaagg | gaggggaggg | gaggggagga | 660  |
| aagaaaagaa | tactggaact | tgttgaaggc | agagacttta | ttttcatatc | ccggctatgt | 720  |
| ctggctactg | tcttacgtaa | tagatataaa | atcaatctt  | gttggattaa | ccagaagaat | 780  |
| gagaagat   | attctggtaa | gttgaatact | tagcacc    | ggtaatcag  | cttggacagg | 840  |
| accaggtcca | aagactgtt  | agagtctt   | gactccaaac | tcagtgc    | ctccagtgc  | 900  |
| acaagcaa   | tccataaagg | tatcctgtgc | tgaatagaga | ctgttagtgc | gtacaaagta | 960  |
| agacagacat | tatattaagt | cttagctt   | tgacttcgaa | tgacttac   | aatctagcta | 1020 |
| aatttcagtt | ttaccatgt  | taaatcagga | agagtaatag | aacaaac    | tttgggtccc | 1080 |
| aatggtgatt | aatgaggt   | atgtacataa | catgcatc   | tcataataa  | tgctctt    | 1140 |
| atattagtca | ctattattag | ccatctct   | ttagatt    | caataggaac | ataggaaag  | 1200 |
| atatagtaca | ttcaggattt | tgttagaaag | agatgaagaa | attcc      | ttcctgc    | 1260 |
| agtcatcta  | ggagttgtca | tggttcatt  | ttgacaaatt | at         | tttccca    | 1320 |
| tttgc      | caga       | aagtctacat | cgaagcac   | aagactgt   | aatctagtc  | 1380 |
| acttaactca | tacgtgc    | cccttctca  | aagcaaact  | tttgc      | tatc       | 1440 |
| ctctgagttt | tctgc      | cctactc    | tgccc      | atgt       | ttcttc     | 1500 |
| ctccactgg  | tcaa       | atccta     | cctgtac    | ttgtt      | ctgt       | 1560 |
| agtactccta | gcaa       | atgcac     | ggc        | tttgc      | atgt       | 1620 |
| aagcatgt   | ctattct    | cctcgaa    | cgatt      | tat        | ttat       | 1680 |
| gatataattt | tgtat      | ttcttct    | taatcc     | aagatt     | ttat       | 1740 |
| tacgt      | agtagcc    | catagcc    | at         | aaagtct    | cttcaac    | 1800 |
| gttcc      | aggat      | tctt       | cctcc      | cctcc      | ccttc      | 1860 |
| cttcc      | ccttc      | tttct      | tttgc      | act        | ctgtc      | 1920 |
| agtggcg    | tcttgg     | ctgcaac    | cgc        | ccccc      | gtaagc     | 1980 |
| tcagcc     | gat        | gactac     | g          | g          | ttctc      | 2040 |
| tttttagt   | agatgg     | tttgc      | gg         | tttgc      | atgt       | 2100 |
| tgatcc     | gtctgg     | ccaa       | atgt       | gggat      | gtctcg     | 2160 |
| gctt       | aaaa       | atgtt      | aatgt      | gaggataa   | ccctacat   | 2220 |

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|            |            |            |            |            |             |            |      |
|------------|------------|------------|------------|------------|-------------|------------|------|
| caataatatt | ctttaggaaa | aaggcgccgg | tggtgattta | cctgatgaca | agcattcccc  | 2280       |      |
| actatggaaa | aaaagcgca  | g          | cttttctgc  | tctgctttta | ttcagtagag  | tatttagag  | 2340 |
| attgtataga | at         | ttcagagt   | tgaataaaag | ttcctcataa | ttataggagt  | ggagagagga | 2400 |
| gagtctctt  | cttccttca  | tttttatatt | taagcaagag | ctggacattt | tccaagaaag  | 2460       |      |
| ttttttttt  | ttaaggcgcc | tctcaaaagg | ggccggattt | ccttctcctg | gaggcagatg  | 2520       |      |
| ttgcctctct | ctctcgctcg | gattggttca | gtgcactcta | gaaacactgc | tgtggtggag  | 2580       |      |
| aaactggacc | ccaggtctgg | agcgaattcc | agcctgcagg | gctgataagc | gaggcattag  | 2640       |      |
| tgagattgag | agagacttta | ccccggcg   | tggttggag  | ggcgccgagt | agagcagcag  | 2700       |      |
| cacaggcg   | ggtcccggga | ggccggctct | gctcgcccg  | agatgtggaa | tctccttcac  | 2760       |      |
| gaaaccgact | cggctgtggc | caccgcgc   | cgcccgcg   | ggctgtgcgc | tggggcgctg  | 2820       |      |
| gtgctggcg  | gtggcttctt | tctcctcg   | ttcctcttcg | gtaggggggc | gcctcgccga  | 2880       |      |
| gcaaacctcg | gagtcttccc | cgtggtgccg | cggtgctggg | actcgccgg  | cagctgcccga | 2940       |      |
| gtgggatcct | gttgctggc  | ttccccaggg | gcggcgatta | gggtcggggt | aatgtggggt  | 3000       |      |
| gagcacccct | cgag       |            |            |            |             | 3014       |      |

<210> 120

<211> 2122

<212> DNA

<213> HOMO SAPIENS

|             |            |            |             |            |             |            |     |
|-------------|------------|------------|-------------|------------|-------------|------------|-----|
| <400>       | 120        |            |             |            |             |            |     |
| tagggggcg   | cctcgccgag | aaacctcgga | gtctccccg   | tggtgccgcg | gtgctgggac  | 60         |     |
| tcgccccgtca | gctgccgagt | gggatcctgt | tgctggtctt  | ccccaggggc | ggcgattagg  | 120        |     |
| gtcggggtaa  | tgtgggtga  | gcacccctcg | agttaggagg  | aggtagctg  | ggaacgggtgc | 180        |     |
| aggcgtgat   | tctcgacaag | ctgctggtag | gacagtca    | caggttgagg | gtagaactga  | 240        |     |
| gagaacctga  | aactggcg   | aggaaggttc | caagtgcgg   | agccctgcaa | gacagaggaa  | 300        |     |
| gtttttttt   | tgctttgtt  | ttgtttgtt  | ttgtttgtt   | ttgtttgtt  | .tgtttgttg  | 360        |     |
| tttttttacc  | tctctgtgca | ttctttcttc | cttggaaagta | acagaggcaa | gcttgggaac  | 420        |     |
| tgtgtgaacc  | aggtcagcaa | tctggacagg | tcttaccag   | cgggtcttt  | gctgttttc   | 480        |     |
| ctgggtactg  | at         | ttgcagac   | ttgatccaac  | tttctaagaa | aagcagaacc  | acacaggcaa | 540 |
| gctcagactc  | ttttattaaa | ttccagttt  | gactttgcca  | cttcttagtg | gccttgaaca  | 600        |     |
| agttaccgag  | tccctctcag | cgttagttac | cctattttat  | gatgaggata | atattatctg  | 660        |     |
| caaattattg  | gtatagtaa  | ataatata   | atgtaaatct  | cctagcacag | tactggatt   | 720        |     |

## 41426-FA-PCT-US

|  |      |
|--|------|
| ttcgccactt tatttcttct tttccaagat actcctcatt ggacttaat acacaggact     | 780  |
| agtctaaaggat atcaccaggt agtccactcc tgctcggaaat tcttgaccct cttdcggtat | 840  |
| ttagaagaat agggcatgga ccagatgggt ttaaacaat tcaatatctt ccactagctt     | 900  |
| caccttgggg ttgttaaaag attttgaac cacacactgt gtcataaca atcttcatct      | 960  |
| cttaaaagga ttttatttctt cctggatttgc ccctcactct catcccgat tccgtgctca   | 1020 |
| gtggctgaca cagaagagtt ctttatttgcat gtccggcccc cacccactag gattctctgc  | 1080 |
| tctccctcc ccctacaggc ctccatcctc ttcatcctgt tcattttca gatctcagtt      | 1140 |
| caagcatctc gtcctcagtg tgggtttcc tgatccctca ctctaattcca agtcttctg     | 1200 |
| ttttatgcac aggtggaatc ttatttccgt ttgcgtccaa tcatgtatatt taatatgcac   | 1260 |
| gtatatatgt atgtgcattt gtatgcatgc gattaagaac tagaataatt aataattgga    | 1320 |
| aagctccatg aaagctgggtt gggactaat tttgtaacta ctttattccc agatcctgtat   | 1380 |
| atttctctaa ataaaccctg gaatcttgcc tttctccttc aggttaaaag ccaactgcaa    | 1440 |
| ggtctaattga ctgcaggatc tagctatcca ttgtttctgg ccgcctatgc gtgcactggg   | 1500 |
| tgtctggcag agaggctggg taaattgttag tttcatttgc gctgtctgac ttggatttct   | 1560 |
| cacgcctact tcactggaaa cgccaaactct cacagcattt tgttttagtt tcagaatcag   | 1620 |
| agcaaatttgc aagtctgaat ttccctcaac acttggaaat aatttattttt tttgaaatatt | 1680 |
| attcataatt aattcgatattt aaaaatgtat taaatgctta ttgagtcag cagaggaaga   | 1740 |
| tagaaacttt atgaaatgt aaggtggatc ttcccttgc ttccattttc agaacatctc      | 1800 |
| gtttacaccc attagttgaa acattaaatgt cattttattt tcgtcctgtat tatctcataa  | 1860 |
| aaacatttctt agaataacag caatacctat cattgaagtt ggataagaaa tattttgcaa   | 1920 |
| ttgggttgca acttaaaaat ctgtttgcat gactctttt cagtgaaagt aggcaagaga     | 1980 |
| aattttttt cagaaatatac tcacctaattt tcagaggtaa tattgataat ttgtgtttt    | 2040 |
| caaataatac atacaacaat aatgaaaaat aagtcctatc tataggctcg tatctcatgc    | 2100 |
| ctatttttgg atgtatattttt ca   | 2122 |

&lt;210&gt; 121

&lt;211&gt; 1896

&lt;212&gt; DNA

&lt;213&gt; HOMO SAPIENS

&lt;220&gt;

&lt;221&gt; misc\_feature

<222> (634)..(650)

<223> n=any nucleotide

<220>

<221> misc\_feature

<222> (950)..(961)

<223> n=any nucleotide

<220>

<221> misc\_feature

<222> (1045)..(1045)

<223> n=any nucleotide

<220>

<221> misc\_feature

<222> (1103)..(1103)

<223> n=any nucleotide

<220>

<221> misc\_feature

<222> (1362)..(1369)

<223> n=any nucleotide

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<222> (1533)..(1534)

<223> n=any nucleotide

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<221> misc\_feature

<222> (1543)..(1543)

<223> n=any nucleotide

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 <223> n=any nucleotide

<220>  
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 <222> (1783)..(1783)  
 <223> n=any nucleotide

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| tgaaaaatac atcaaaaata ggcatgagat acgagcctat agataggact tatttttat   | 60   |  |
| tattgttcta tgtattattt gtaaaacaca aattatcaat attacctctg acattaggtg  | 120  |  |
| agatattctg aattttaatt tctcttcctt actttcactg aaaaagagtc atgcaaacag  | 180  |  |
| attttaagt tgcaaaccata ttgcaaaata ttttttatac caacttcaat gataggtatt  | 240  |  |
| gctgttaatt ctaagatatg cattaattgt ttcaactaat ggggtcaaa cgagatgttc   | 300  |  |
| tgaaaatgaa ggcaaaaagg agatccaccc tctactttca taaagttct atcttcctct   | 360  |  |
| gctgactcaa ataagcattt aatacatttt ataacgaatt aattatgaat atatttcaaa  | 420  |  |
| taaataaaatt atttccaagt gttgaaggaa attcagactt ctaatttgc ctgattctga  | 480  |  |
| aactaaaaca aatgctctgt gagagttgc gttccagtg aagtagcgtg agaaatccaa    | 540  |  |
| gtcagacagc tacatgaaac tacatttacc agctctctgc cagacaccag tgcacgata   | 600  |  |
| cgcagaacat gtagcttagat ctcagtcata gctnnnnnnnnnnnnnnnnnnnnnnnnnnnn  | 660  |  |
| gttggctttt aacctgaagg agataaggca agattccagg gtttatttag agaaattaca  | 720  |  |
| ggatctggaa ataaagtagt tacaaaatta gtccccaacc agctttcatg gagcttcaa   | 780  |  |
| ttattaatta ttcttagttct taatcgcatg catacaatgc acatacatat atacatgc   | 840  |  |
| attaaaatac atgattggac gcaaacggaa ataagattcc acctgtcat aaaacagaaa   | 900  |  |
| gacttggta gagtgaggaa tcagggaaaca ccacactgag gacgagatgn nnnnnnnnnnn | 960  |  |
| ntagtgggtg gggggcggac atcaataaag aactcttctg tgcagccac tgagcacgga   | 1020 |  |
| ataaaggat gagagtgagg gcaantacca gaagaataaa atcctttaa gagatgaaga    | 1080 |  |
| ttgttatgag cacagtgtgt ggnttcaaaa atcttttaac aaccccaagg tgaagctagt  | 1140 |  |
| tggaaagatat ttgaatttgt ttaaaccat ctggccttag cccttatttt tgaatcccga  | 1200 |  |
| aagagggtca agaattccga gcaggagtgg actacccgtt gataccttag actagtcctg  | 1260 |  |

|  |            |      |
|--|------------|------|
| tgtattaaag tccaatgagg agtatcttgg taaaataata aataaagtcc             | cgaaaatccc | 1320 |
| agtactgtgc taggagattt acatgctata ttatttacta tnnnnnnnnnt aatttgcaga |            | 1380 |
| taatattatc ctcataa aataggtaa ctaacgctga gaggactcg gtaacttgc        |            | 1440 |
| caaggccact aagaagtggc aaagtcaaaa ctggaatttt aataaaagag tctagcttgc  |            | 1500 |
| ctgtgtggtt ctgtttct tagaaagttg gannaagtct canatcaga cccaggaaaa     |            | 1560 |
| acagcaaaag acccgctggt aaagacctgt ccagattgct gacctggttc acacanntcc  |            | 1620 |
| aagcttgct ctgttacttc caaggaacaa agaatgcaca gagaggtaaa aaaacaaaca   |            | 1680 |
| aaccaaacaa aacaaaacaa aacaaaacaa aacaaaacaa aagcaaaaaaa aaacttcctc |            | 1740 |
| tgtcttgcag ggctccagca ctggAACCT tcctacgtcc tantttcagg ttctctcagt   |            | 1800 |
| tctaccctca acctgagtga ctgtcctacc agcagcttgt cgagaactca gccctgcacc  |            | 1860 |
| gttcccagct accctcctcc taactcgagg ggtgct                            |            | 1896 |

<210> 122

<211> 1278

<212> DNA

<213> HOMO SAPIENS

<220>

<221> misc\_feature

<222> (314)..(319)

<223> n=any nucleotide

<220>

<221> misc\_feature

<222> (452)..(452)

<223> n=any nucleotide

<220>

<221> misc\_feature

<222> (1037)..(1038)

<223> n=any nucleotide

|   |      |
|---|------|
| <400> 122   |      |
| ggattctgtt gagccctagc tcattatgtat gtcctgttgt cctacccaaa taagactcat    | 60   |
| cccaactaca tctcaataat taatgaagat ggaaatgagg taaaaaataa ataaataaaat    | 120  |
| aaaagaaaaca ttcccccca tttatttattt tttcaaatac cttctatgaa ataatgttct    | 180  |
| atccctctct aaatattaat agaaatcaat attattggaa ctgtgaatac cttaatatac     | 240  |
| tcattatccg gtgtcaacta ctttcctatg atgtttagtt actgggttag aagtcgggaa     | 300  |
| ataatgctgt aaannnnnna gttagtctac acaccaataat caaatatgat atacttgtaa    | 360  |
| acctccaaggc ataaaaagag atactttata aaagagggttc tttttttttt tttttttttt   | 420  |
| ccagatggag tttcactcct gtcaggcagg cngagtgcag tgggccatc tcggctcact      | 480  |
| gcaacctcca cctccatgt tcaagggatt ctccttcctc agtctcctga gtatctggaa      | 540  |
| ttacaggtgt gcaccaccac acccagctaa tttttgtatt ttaatagag acagggtttc      | 600  |
| atcgatgttgc gcccaggctag tctcgaactc ctgacctcta ggtgatccac ccgcctcagc   | 660  |
| ctcccaaagt tgtagaattt cacgtgtgag gcactgctct ggccaggaga tacattttg      | 720  |
| ataggtttaa ttataaaga cactgcacag atttggagtt gctggaaat cacgatccag       | 780  |
| tatgcatttgc acccagcaat ttttatttggt acttaatgat tataatctcaa ttgatcaggt  | 840  |
| tgaactctgt gcgaagaatt tttgtgtgga catttggagag gacagttgg aggcaaggta     | 900  |
| tttttagtaga tttaaagaat ttgaatcttgc tttgcaagtt ggggcatata ctgagaaaga   | 960  |
| gaagacaatg cagataaattt gatataattt ttatgtatgtat tgatcaatgaaatgatcac    | 1020 |
| aaaatataac atacatnnat cttacttaac atacctcagt ttttagagcta ccgtatgttag   | 1080 |
| aagagtccat ttcttatttggta taagttcctt tagtcctttt attactgggc actcttaatt  | 1140 |
| acatgtatgt taaaatatgtt ccagtttggag cagtgaactg aaaatgtcat gtgatataatgt | 1200 |
| acatataaa tttttttca tagtaggtca ataacctcct tttattgact aatgaatcag       | 1260 |
| ttctctaatgtt attatacgt  | 1278 |

<210> 123

<211> 1240

<212> DNA

<213> HOMO SAPIENS

<220>

<221> misc\_feature

<222> (380)..(387)

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<221> misc\_feature

<222> (675)..(680)

<223> n=any nucleotide

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<221> misc\_feature

<222> (720)..(720)

<223> n=any nucleotide

<220>

<221> misc\_feature

<222> (974)..(974)

<223> n=any nucleotide

<220>

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<222> (977)..(977)

<223> n=any nucleotide

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<221> misc\_feature

<222> (981)..(981)

<223> n=any nucleotide

<220>

<221> misc\_feature

<222> (1090)..(1090)

<223> n=any nucleotide

<220>

<221> misc\_feature  
 <222> (1166)..(1171)  
 <223> n=any nucleotide

&lt;220&gt;

<221> misc\_feature  
 <222> (1210)..(1210)  
 <223> n=any nucleotide

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 atcttttatg tca tagtagagg gtgaatgatc cttcaggatt ttgatgatag tatcagatac  
 ccagcactat gctagaagtt gtgaagaatt cacgagatga ataaatcaca gattctgtcc 120  
 tcaaaaatggt tagatctatt cagggaaacaa agctaaaaaa accccaccaa taactaaaaa 180  
 tcaaccaaata gaaaaacaac aatcataaaa taagtaagta cctatagaaa gaaaagctca 240  
 gaggaggtaa aaagataact cttccaaaag gaatactata tactgtaaac tgtgtactga 300  
 tagaaggaag aattagaaaan nnnnnnnntgt aagtggcata catactaagc tagtgtgaac 360  
 acaaggctaa atatgttagt gcttcacaga aggttagaa taaattaacc tcatgaattt 420  
 cttgagagaa cttgtaagga ctaagcttc gatttggag aaagattta ataccaaata 480  
 aaaagtacct ttgtttggta atctcaatca ttataatagt gcttagataa tacctaggaa 540  
 caaattaaat attaaattta cttaaaaaa aagtacatga ttggggaaatc acaactggcc 600  
 ttactagatt ctctnnnnnn atatgcactg aaaagaatga aaaacactga accaaatatn 660  
 tgttttttta agttaaaat taaattggaa aaaaatagta aggaatataca gaagcaaaaa 720  
 aataaaatga aagcaagaat cctcagaggt agcacgaaat ttggcttgc ttagatggat 780  
 ctatcaaagc tatggcccat gaaaaggatt caggagttag tttaaagctg gttcacataa 840  
 tggaatctag cagaagactg tgcataaagg tggtctaaga acaacaatat cctgaccagg 900  
 tgagggggct cacnctnaat nccagcactt tgggagccca aggtgggtgg atcacgaggt 960  
 caggagttg agaccagcct gaccaacatg gtgaaaccgc gtctctacta aaaatagaaa 1020  
 aattagccgn gcctacgtgc ttctaatccc agctgaactc aggagactga gacaggagaa 1080  
 tcacttgaac ccagcatgca agctnnnnn ngccactgca ctccagctag ggtgcaaaaa 1140  
 aaaaaaaaaan gacacattac tcaggttaagg taatcaataa 1200  
 1240

&lt;210&gt; 124

41426-FA-PCT-US

<211> 783

<212> DNA

<213> HOMO SAPIENS

<400> 124  
aaggtaaaaa ttatctcttt ttttctctcc cccaatgtaa aaagttatag tgggtttac 60  
atgttagaa tcattttctt aaaactttat gaataccatt atttcttgc attctgtgac 120  
atgcccacct tacagagagg acacattac tagttatata cccgggtta aattcgagca 180  
ttggaatttg gccagtgtag atgtagttag tgaacagaac aaattttct gtgcttacag 240  
gttatggctg tggcctacaa gaagcatgca ctgggttat tattaacttt cagtatctt 300  
gttttaataa ttttctacaa aaatgtttac taaattaaat ttagttagtga attgttataa 360  
ataatgaggg aaaacaattt acacatagca aataaaaaa ttactgtcat ttgattttgtt 420  
aatatatttt tctcttttagt gggaaattaa atttaaaaaa attcccttc gactgttagaa 480  
caaataaggaa tttggcctgt ggggtctact tgcttattat atttgcatac tagtggtagg 540  
aaatagcaaa tgctcaactac cactaataag aacatttcta aatctgatgt tctgaggatt 600  
tttagagctt atagtagcaa aaagaaaagg gaaattctat ccgagatgtc cttgttgta 660  
ggcctaataatga gaaaagggtt aagataaagt tctggtactc atttaagtgt aatattgaaa 720  
attgatatta ccgaatctgg aacaaccaat taaaataag gaaagaaaaga cactgtgttt 780  
tct 783

<210> 125

<211> 781

<212> DNA

<213> HOMO SAPIENS

<220>

<221> misc\_feature

<222> (504)..(504)

<223> n=any nucleotide

<400> 125  
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aattttcaat ttacacttaa atgagtagcca gaactttatc ttcaaccttt tctcattagg 120  
cctacaacaa aggacatctc ggatagaatt tccctttct ttttgcatac ataagctcta 180

41426-FA-PCT-US

|            |            |            |             |             |            |     |
|------------|------------|------------|-------------|-------------|------------|-----|
| aaaatcctca | gaacatcaga | tttagaaatg | ttcttattag  | tggttagtgag | catttgctat | 240 |
| ttcctaccac | tagcttacaa | atataataag | caagtagacc  | ccacaggcca  | aattcctatt | 300 |
| tgttctacag | tcgaaaggga | atttttaaa  | atthaatttc  | ccactaaaga  | aaaaaatata | 360 |
| ttaacaaatc | aatgacagt  | atttttaaa  | tttgctatgt  | gtaaattgtt  | ttccctcatt | 420 |
| atttataaca | attcatacta | caatttaatt | tagtaaacat  | ttttgttagaa | aatatttaaa | 480 |
| acaaagatac | tgaaagttaa | tatnaaacc  | agtgcattgct | tctttaggc   | cacagccata | 540 |
| acctgtaagc | acagaaaaat | ttgttctgtt | actctaaaca  | tctacactgg  | ccaaattcca | 600 |
| atgctcgaat | ttaaccccg  | gatataacct | agtaaatgtg  | tcctctctgt  | aaggtggca  | 660 |
| tgtcacagaa | tacaagaaaa | taatggtatt | cataaagttt  | taagaaaaatg | attctacaca | 720 |
| tgtaaaaccc | actataactt | tttacattgg | gggagagaaa  | aaaagagata  | attttacct  | 780 |
| t          |            |            |             |             |            | 781 |

<210> 126

<211> 1079

<212> DNA

<213> HOMO SAPIENS

<220>

<221> misc\_feature

<222> (262)..(268)

<223> n=any nucleotide

<220>

<221> misc\_feature

<222> (545)..(550)

<223> n=any nucleotide

<220>

<221> misc\_feature

<222> (900)..(907)

<223> n=any nucleotide

&lt;220&gt;

&lt;221&gt; misc\_feature

&lt;222&gt; (917)..(917)

&lt;223&gt; n=any nucleotide

&lt;220&gt;

&lt;221&gt; misc\_feature

&lt;222&gt; (955)..(955)

&lt;223&gt; n=any nucleotide

&lt;220&gt;

&lt;221&gt; misc\_feature

&lt;222&gt; (1009)..(1009)

&lt;223&gt; n=any nucleotide

|   |      |
|---|------|
| <400> 126   |      |
| gatgttattt gggcaatttc ttattgacag ttttcaaatg ttaggctttt atctccattt   | 60   |
| tttagtactt aaattttccaa acatgggtgt tgcttgttat ttatcaga taaaatagaa    | 120  |
| gagtggttct gttctggaat ttagtatata catgagtatc tagtgtatgt cagccatgaa   | 180  |
| aatgaacctt tcagatgttt aacttcaggg aacctaattt agtcattgtt ccagacattt   | 240  |
| ttgctttgaa cccactata tnnnnnnnnct cgggcaatga ctcagtgtgg caaggatact   | 300  |
| actgcaggcc tggggcttggaa aggcactgga ctcctctgat gcaaactttt gccagggact | 360  |
| ccttgatagc tcttaaatag atgctgcacc aacactctct ttcttttctc tctttttctt   | 420  |
| tattcaatat tagactacaa gcagtctaag gacttctcag ggtttcttagc tctctctcat  | 480  |
| ttcacacatg ctttccttagt aatctctact catatatctt actgctacgc tggggccaga  | 540  |
| taacnnnnnnn cttccatttt gtttttatct ctattctct tcccttctg ctttcattat    | 600  |
| tgaaactttc tgctttcattt attgaaactt tccagattt gttctgttta acctggcatt   | 660  |
| ggaactgttt cctcttcctt gtgctgtttt ctcccatatgc catgtccctt tttttttttt  | 720  |
| tttttttttt tgagacagtg tcactctgtt gcccaggctg gagtgcaatg gtgcaatctt   | 780  |
| ggccactgca acccccgccct cccgggttca agtgattctc ctgcctcagc ctcctgagta  | 840  |
| gctgggatta caggtgccccca ccactatgcc cggctgattt ttgtatTTTT agtagagatn | 900  |
| nnnnnnnnntt caccatngct gatcaggctg gtctcgaact cctgaccgca gtgantccgc  | 960  |
| cctccttggc ctcccaaagt gctgagatta caggcatgag tcactgcgnc cagccaccat   | 1020 |

tattctctag aggtgagaga acactggctc ttctaaacaag ttgaaatttg atagagacc 1079

<210> 127

<211> 1977

<212> DNA

<213> HOMO SAPIENS

<220>

<221> misc\_feature

<222> (840)..(843)

<223> n=any nucleotide

<220>

<221> misc\_feature

<222> (1096)..(1101)

<223> n=any nucleotide

<220>

<221> misc\_feature

<222> (1294)..(1295)

<223> n=any nucleotide

<220>

<221> misc\_feature

<222> (1338)..(1343)

<223> n=any nucleotide

<220>

<221> misc\_feature

<222> (1965)..(1966)

<223> n=any nucleotide

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| cacaaaaaaaaaa gattattagc cacaaaaaaaaaa ccttgaagta acgcattaaa atgttaatgg | 60   |
| attcaactta tttagcatct gctcataata cttaatgag tgcaaagtgc tttgaatata        | 120  |
| atacgtcatt taaaccttac cataattctg aggaattgct acctccactt cacagatggg       | 180  |
| gcacaggagg cttagataac atgcccuaag tcatgcttct agtaaatgga tataattaag       | 240  |
| attcaaatta ttgataagaa tttagatctgc cttaccagta tctagtagta aatctaaaag      | 300  |
| cgcttccag agcatgtgct gttgatagag cttgatgtct aactctctga aattttccat        | 360  |
| tcttatttgc ctcactggta tatagttatt ttttactact ttcatacaccc tactaagaag      | 420  |
| acaggaggat caaagatagg atttcattta gaatgcctaa agcttcacgt attttaattc       | 480  |
| agaataagat tcaggcagac caccagtata tgccatggc cctggttatc tttcagcagg        | 540  |
| tgaccgagaa agaaaacatg gtaatgtta tgaaatggtg ggttcttgc gtttcacttc         | 600  |
| aacatatctg ccttactgt attaagatga tggattaact tattcttgc atggcatgt          | 660  |
| aaaacaatat acttttacta aacagctaca gagagacaaa tgtgtttcca gacaaactta       | 720  |
| agagactgag tggtaact gaataatctc gacctaatt gtaactataat tttatgaaat         | 780  |
| ccagctgtaa ggcaaaaaaca gacttcttg ggcctaccac gggcattttg ttcctgttan       | 840  |
| nnntactcca aaccttaaac ccacgtccac ttaaataatg gcctggaaat aaatgtcatt       | 900  |
| atctgatatt atactgagat gtttagttat gaaatcaaaa gtggagaatt tcaatctgct       | 960  |
| ctgtaagctt tctctgcggc cacgaccctc atgcactcag gctgtgcggc gcagcatgct       | 1020 |
| ctgtcatgct tgccccctc tgccctgtaca cgggtgggttgc ttcctgtcta cctgtttgag     | 1080 |
| gaaatatgaa tacgtnnnnn nctagaatct actgcacatg caataaggaa acaatcagta       | 1140 |
| agaatcactt tctcgtggaa aattcattag aattaacatc tcgtttaaa atgcctatc         | 1200 |
| aaagtgtaaa taattccctt ctctttccc ttttctacta aggagttgt atattaaaca         | 1260 |
| gaatttcaag taatgttata taaaatttta taanntattt acaataaaaat gccacgtata      | 1320 |
| agcatcaagc aacatgannn nnncattggg agaaagcaca atacatagtc aaaacagcag       | 1380 |
| agtattaaat aaacagaaaaa tttgcaaaag gcaagtaaag aatatacata tacttaatta      | 1440 |
| tacataaaaat attgatacag gaggtagaaa gaaatttagt aagcagataa tgggggcaac      | 1500 |
| agagtccctca gcagagcttc cttcttaaca aaaagcagcc caataaaat tttttttttt       | 1560 |
| ctaacaaaaa gcagcctgaa aaatcgagct gcaaacatag attagcaatc ggctgaaagt       | 1620 |
| gcgggagaat gctggcagct gtgccaatag taaaggctt cctggagccg ggccgcgtggc       | 1680 |
| tcacgctgtt atccccagcac tttgggaggg cgaggcaacg cggatcacct gaggtcggga      | 1740 |
| gtttgagatc agcccgacca acatggagaa accccgtctc tactaaaaaaa aaaaaaaaaaa     | 1800 |
| aaaggcaaaa aatgagccgg gcatggtggc acatgccttgc cacatcccag ctgaggcagg      | 1860 |
| agaattcact tgaacctggg aggttagagat tgcggtgaag cgagatcact tcattgcact      | 1920 |

ccagcctggg caaaaagagc aaaacttagt ctcaaaaaaa aaaanncaa gaaaaaaa 1977

&lt;210&gt; 128

&lt;211&gt; 750

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 128

Met Trp Asn Leu Leu His Glu Thr Asp Ser Ala Val Ala Thr Ala Arg  
1 5 10 15Arg Pro Arg Trp Leu Cys Ala Gly Ala Leu Val Leu Ala Gly Gly Phe  
20 25 30Phe Leu Leu Gly Phe Leu Phe Gly Trp Phe Ile Lys Ser Ser Asn Glu  
35 40 45Ala Thr Asn Ile Thr Pro Lys His Asn Met Lys Ala Phe Leu Asp Glu  
50 55 60Leu Lys Ala Glu Asn Ile Lys Lys Phe Leu Tyr Asn Phe Thr Gln Ile  
65 70 75 80Pro His Leu Ala Gly Thr Glu Gln Asn Phe Gln Leu Ala Lys Gln Ile  
85 90 95Gln Ser Gln Trp Lys Glu Phe Gly Leu Asp Ser Val Glu Leu Ala His  
100 105 110Tyr Asp Val Leu Leu Ser Tyr Pro Asn Lys Thr His Pro Asn Tyr Ile  
115 120 125Ser Ile Ile Asn Glu Asp Gly Asn Glu Ile Phe Asn Thr Ser Leu Phe  
130 135 140Glu Pro Pro Pro Gly Tyr Glu Asn Val Ser Asp Ile Val Pro Pro  
145 150 155 160Phe Ser Ala Phe Ser Pro Gln Gly Met Pro Glu Gly Asp Leu Val Tyr  
165 170 175Val Asn Tyr Ala Arg Thr Glu Asp Phe Phe Lys Leu Glu Arg Asp Met  
180 185 190

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Lys Ile Asn Cys Ser Gly Lys Ile Val Ile Ala Arg Tyr Gly Lys Val  
195 200 205

Phe Arg Gly Asn Lys Val Lys Asn Ala Gln Leu Ala Gly Ala Lys Gly  
210 215 220

Val Ile Leu Tyr Ser Asp Pro Ala Asp Tyr Phe Ala Pro Gly Val Lys  
225 230 235 240

Ser Tyr Pro Asp Gly Trp Asn Leu Pro Gly Gly Val Gln Arg Gly  
245 250 255

Asn Ile Leu Asn Leu Asn Gly Ala Gly Asp Pro Leu Thr Pro Gly Tyr  
260 265 270

Pro Ala Asn Glu Tyr Ala Tyr Arg Arg Gly Ile Ala Glu Ala Val Gly  
275 280 285

Leu Pro Ser Ile Pro Val His Pro Ile Gly Tyr Tyr Asp Ala Gln Lys  
290 295 300

Leu Leu Glu Lys Met Gly Gly Ser Ala Pro Pro Asp Ser Ser Trp Arg  
305 310 315 320

Gly Ser Leu Lys Val Pro Tyr Asn Val Gly Pro Gly Phe Thr Gly Asn  
325 330 335

Phe Ser Thr Gln Lys Val Lys Met His Ile His Ser Thr Asn Glu Val  
340 345 350

Thr Arg Ile Tyr Asn Val Ile Gly Thr Leu Arg Gly Ala Val Glu Pro  
355 360 365

Asp Arg Tyr Val Ile Leu Gly Gly His Arg Asp Ser Trp Val Phe Gly  
370 375 380

Gly Ile Asp Pro Gln Ser Gly Ala Ala Val Val His Glu Ile Val Arg  
385 390 395 400

Ser Phe Gly Thr Leu Lys Lys Glu Gly Trp Arg Pro Arg Arg Thr Ile  
405 410 415

Leu Phe Ala Ser Trp Asp Ala Glu Glu Phe Gly Leu Leu Gly Ser Thr  
420 425 430

Glu Trp Ala Glu Glu Asn Ser Arg Leu Leu Gln Glu Arg Gly Val Ala  
435 440 445

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Tyr Ile Asn Ala Asp Ser Ser Ile Glu Gly Asn Tyr Thr Leu Arg Val  
450 455 460

Asp Cys Thr Pro Leu Met Tyr Ser Leu Val His Asn Leu Thr Lys Glu  
465 470 475 480

Leu Lys Ser Pro Asp Glu Gly Phe Glu Gly Lys Ser Leu Tyr Glu Ser  
485 490 495

Trp Thr Lys Lys Ser Pro Ser Pro Glu Phe Ser Gly Met Pro Arg Ile  
500 505 510

Ser Lys Leu Gly Ser Gly Asn Asp Phe Glu Val Phe Phe Gln Arg Leu  
515 520 525

Gly Ile Ala Ser Gly Arg Ala Arg Tyr Thr Lys Asn Trp Glu Thr Asn  
530 535 540

Lys Phe Ser Gly Tyr Pro Leu Tyr His Ser Val Tyr Glu Thr Tyr Glu  
545 550 555 560

Leu Val Glu Lys Phe Tyr Asp Pro Met Phe Lys Tyr His Leu Thr Val  
565 570 575

Ala Gln Val Arg Gly Gly Met Val Phe Glu Leu Ala Asn Ser Ile Val  
580 585 590

Leu Pro Phe Asp Cys Arg Asp Tyr Ala Val Val Leu Arg Lys Tyr Ala  
595 600 605

Asp Lys Ile Tyr Ser Ile Ser Met Lys His Pro Gln Glu Met Lys Thr  
610 615 620

Tyr Ser Val Ser Phe Asp Ser Leu Phe Ser Ala Val Lys Asn Phe Thr  
625 630 635 640

Glu Ile Ala Ser Lys Phe Ser Glu Arg Leu Gln Asp Phe Asp Lys Ser  
645 650 655

Asn Pro Ile Val Leu Arg Met Met Asn Asp Gln Leu Met Phe Leu Glu  
660 665 670

Arg Ala Phe Ile Asp Pro Leu Gly Leu Pro Asp Arg Pro Phe Tyr Arg  
675 680 685

His Val Ile Tyr Ala Pro Ser Ser His Asn Lys Tyr Ala Gly Glu Ser  
690 695 700

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Phe Pro Gly Ile Tyr Asp Ala Leu Phe Asp Ile Glu Ser Lys Val Asp  
705 710 715 720

Pro Ser Lys Ala Trp Gly Glu Val Lys Arg Gln Ile Tyr Val Ala Ala  
725 730 735

Phe Thr Val Gln Ala Ala Ala Glu Thr Leu Ser Glu Val Ala  
740 745 750